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September 24, 2008

Ms. Marlene H. Dortch, Secretary  
Federal Communications Commission  
Office of the Secretary  
445 12th Street, S.W.  
Washington, D.C. 20554

**RE:** MD Docket No. 08-65, RM-11312

Dear Ms. Dortch:

I am writing to you in support of the Internet2 filing of September 23, 2008 regarding this proceeding. As noted in the Internet2 filing, this proceeding will determine whether the United States will retain a leadership role, and remain extremely competitive, in numerous critical scientific fields, or whether its role will be greatly diminished, to the tremendous detriment of the citizens of the United States and its scientific community.

I am writing as a Professor of Physics at the California Institute of Technology and as the Principal Investigator of the US Department of Energy's Office of Science-funded<sup>1</sup> USLHCNet project – a project that puts in place the very critical, very high-bandwidth network infrastructure required to support the US high energy physics community's participation in the just-launched Large Hadron Collider (LHC) program located at CERN in Geneva, Switzerland. As you may have read in this past week's press, the LHC is the largest experimental facility ever built, and the only instrument of its kind in the world, with no comparable facility in the US. A networked "grid" of LHC computing and data storage facilities, first conceived and designed at Caltech and now adopted worldwide, is essential to distribute and process the data at a dozen major national grid sites in the US, Europe and Asia. The processed data is then distributed among, and repeatedly analyzed at more than 140 university-based computing and storage facilities, by thousands of physicists located throughout the world.

Transporting enormous quantities of data across the Atlantic, in the range of millions of Gigabytes, is essential for operation of the worldwide LHC grid, especially as half of the computing and storage capacity and one-third of the physicists reside in the US. The US physics community in particular, separated from the LHC by the Atlantic Ocean and by 6 to 9 time zones is entirely dependent on transatlantic networks of sufficient bandwidth for its research, and for participating in and leading some of the physics discoveries expected when the LHC resumes operation this year.

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<sup>1</sup> Funded by a DOE grant to Caltech.

In order to provide the US research community with the ability to access and share in the LHC data and the discoveries, the USLHCNet project currently purchases from telecommunications carriers four 10 Gigabit per second (Gbps) international circuits across the Atlantic, interlinking its points of presence in New York, Chicago, Amsterdam and Geneva. US LHCNet plans to acquire several additional 10 Gbps circuits, doubling its capacity over the next two years, and to continue to expand its bandwidth capacity as required in future years, to meet the needs of the US physicists.

I believe that the International Bearer Circuit (IBC) tax, if applied to circuits used by the Research and Education community in the US, including US LHCNet, would have an adverse affect on our ability to continue to support the extremely high-bandwidth, extremely large data transfer needs of the US research community. The capacity of US LHCNet is strictly funding-limited. As a result, imposition of a tax would immediately reduce US LHCNet's capacity, and limit its ability to expand its bandwidth capacity as needed in the future. This would damage, and potentially remove the US' position of leadership in our field of high energy physics, and in other areas of "data intensive science" with similar needs. As we have developed, and continue to develop the state of the art techniques in long range data transport and grid systems, the imposition of the tax would also impede the future advance of large scale data distribution and exchange methods, which are important for progress in many walks of life in the next decade.

I support Internet2's efforts to explore with the Commission and the concerned carriers ways to make sure this tax does not harm US science and US competitiveness.

Sincerely,

A handwritten signature in black ink that reads "Harvey B Newman". The signature is fluid and cursive, with the first letters of each word being capitalized and prominent.

Harvey B Newman  
Professor of Physics  
Principal Investigator, US LHCNet  
Chair, Caltech Exchange Programs  
and Study Abroad  
Chair, ICFA Standing Committee on  
Inter-regional Connectivity